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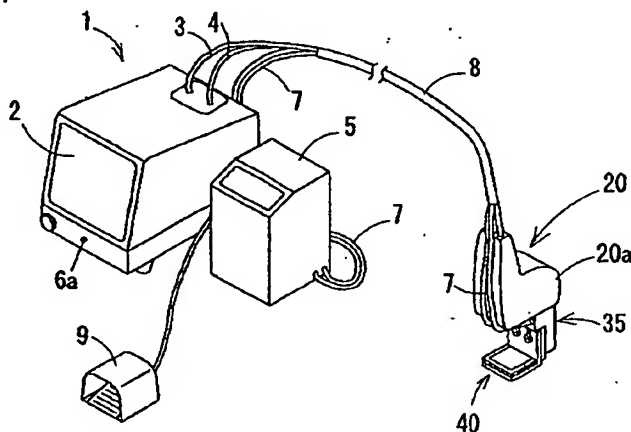
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(54) **Laser skin treatment apparatus**

(57) A laser treatment apparatus which is used to treat an affected part of a patient by irradiating a treatment laser beam to the affected part is disclosed. The apparatus includes a laser irradiation unit (1, 20) provided with a laser irradiation optical system (4, 10, 21, 22, 23, 24, 25) for delivering the laser beam to the affected part, a contact member (40) including a contact face (42) which is brought into contact with at least one of the affected part and a periphery of the affected part, a cooling unit (35) for cooling at least the contact face (42) of the

contact member (40), a detector (15, 31, 51, 51', 60, 70, 80) for detecting at least one of a temperature of a periphery of contact face (42) made contact with the affected part, a temperature of the contact member (40) or the cooling means (35), a contact state of the contact face (42) with respect to the affected part, and a relative substantially horizontal movement of the contact member (40) with respect to the affected part, and an irradiation controller (15) for controlling laser irradiation based on a result of detection by the detector.

FIG.1





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EUROPEAN SEARCH REPORT

Application Number
EP 00 11 1400

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.7)
X	WO 98 24514 A (PALOMAR MEDICAL TECHNOLOGIES I) 11 June 1998 (1998-06-11) * abstract * * page 3, line 30 - page 4, line 11 * * page 5, line 26 - line 32 * * page 6, line 19 - line 32 * * page 7, line 23 - line 24 * * page 8, line 3 - line 32 * * page 9, line 18 - line 25 * * claims 7-9,12,18 * * figure 1 *	1-12	A61B18/20
X	EP 0 827 716 A (ESC MEDICAL SYSTEMS LTD) 11 March 1998 (1998-03-11) * abstract * * column 1, line 49 - column 2, line 54 * * column 4, line 47 - line 51 * * column 5, line 22 - line 30 *	8-12	
A	US 5 820 626 A (BAUMGARDNER JONATHAN M) 13 October 1998 (1998-10-13) * column 5, line 6 - line 18 *	1-12	TECHNICAL FIELDS SEARCHED (Int.Cl.7)
A	WO 90 12545 A (DERMA LASE LIMITED) 1 November 1990 (1990-11-01) * page 3, line 15 - line 19 * * page 6, line 16 - line 19 *	3-6,9-12	A61B A61N
A	WO 98 07379 A (LARSEN ERIC ;HOEGSETH SOLFRID (NO)) 26 February 1998 (1998-02-26) * page 4, line 13 - line 15 * * page 5, line 22 *	3-6,9-12	
A	WO 98 51235 A (GEN HOSPITAL CORP ;PALOMAR MEDICAL TECHNOLOGIES I (US)) 19 November 1998 (1998-11-19) * page 19, line 26 - page 20, line 9 *	7	
The present search report has been drawn up for all claims			
Place of search MUNICH		Date of completion of the search 16 September 2003	Examiner Rodríguez Cossío, J
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document		T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document	

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**ANNEX TO THE EUROPEAN SEARCH REPORT
ON EUROPEAN PATENT APPLICATION NO.**

EP 00 11 1400

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report. The members are as contained in the European Patent Office EDP file on
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16-09-2003

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
WO 9824514	A	11-06-1998	US 6015404 A	18-01-2000
			WO 9824514 A1	11-06-1998
			US 2003032950 A1	13-02-2003
			US 2003065314 A1	03-04-2003
			US 6508813 B1	21-01-2003

EP 0827716	A	11-03-1998	AU 3314297 A	12-03-1998
			CA 2212543 A1	04-03-1998
			EP 0827716 A2	11-03-1998
			JP 10165523 A	23-06-1998

US 5820626	A	13-10-1998	US 5976123 A	02-11-1999

WO 9012545	A	01-11-1990	AU 5422490 A	16-11-1990
			WO 9012545 A1	01-11-1990

WO 9807379	A	26-02-1998	AU 4225897 A	06-03-1998
			EP 0959788 A1	01-12-1999
			NO 990658 A	09-04-1999
			WO 9807379 A1	26-02-1998

WO 9851235	A	19-11-1998	AU 7568698 A	08-12-1998
			EP 0991372 A2	12-04-2000
			JP 2002506362 T	26-02-2002
			JP 2003126277 A	07-05-2003
			US 2002128635 A1	12-09-2002
			US 6273884 B1	14-08-2001
			WO 9851235 A1	19-11-1998
			US 2003032950 A1	13-02-2003
			US 2003065314 A1	03-04-2003
			US 2003055414 A1	20-03-2003
			US 6517532 B1	11-02-2003
			US 6511475 B1	28-01-2003

EPO FORM P059

For more details about this annex : see Official Journal of the European Patent Office, No. 12/82